amount of work pulling vines the same distance. Also let x=the amount of money the man received and, y=the amount of money the boy received. Since the amounts of money are to each other as the amounts of work done.

$\therefore x:y :: d:p$; but $x:y :: mp:d$.

$\therefore mp:d :: d:p :: x:y. \quad \therefore m=\dfrac{d^2}{p^2}=\dfrac{x^2}{y^2}$.

$\therefore x=y\sqrt{m}$. But since $x+y=n$. $\therefore x=n-y$.

$\therefore y\sqrt{m}=n-y. \quad \therefore y=\dfrac{n}{1+\sqrt{m}}$, and $x=\dfrac{n\sqrt{m}}{1+\sqrt{m}}$.

Also solved by *P. S. BERG, C. W. M. BLACK, J. K. ELLWOOD, M. A GRUBER, F. P. MATZ, C. E. WHITE, J. F. W. SCHEFFER, H. C. WHITAKER*, and *G. B. M. ZERR.*

26. **Proposed by ALVIN E. SCHMIDT, Winesberg, Ohio.**

Show that $abc>(a+b-c)(a+c-b)(b+c-a)$ unless $a=b=c$.

I **Solution by P. S. BERG, Apple Creek, Ohio.**

$$a^2>a^2-(b-c)^2$$
$$b^2>b^2-(a-c)^2$$
$$c^2>c^2-(a-b)^2$$

Multiplying together the corresponding members of these inequalities, $a^2b^2c^2>(a+b-c)^2(a+c-b)^2(b+c-a)^2$.

$\therefore abc>(a+b-c)(a+b-c)(b+c-a$.

II. **Solution by COOPER D. SCHMITT, M. A., Professor of Mathematics, University of Tennessee, Knoxville, Tennessee.**

Such examples can be proved either by beginning with known principles and ending with the example, or beginning with the example and reducing it to known truths. I will use the latter method.

If $abc>(b+c-a)(a+b-c)(c+a-b)$, then $abc>ab(a+b)+bc(a+c)+ac(a+c)-2abc-a^3-b^3-c^3$ by multiplication, or $a^3+b^3+c^3+3abc>ab(a+b)+bc(b+c)+ac(a+c)$, but $a^3+b^3+c^3>3abc$. Hall and Knight's Algebra, or easily proved. Hence, *a fortiori*, $2(a^3+b^3c+^3)>ab(a+b)+bc(b+c)+ac(a+c)$, but this is true, Hall and Knight's Algebra, page 210.

Hence, the original proposition is true.

Also elegantly solved by *B. F. BURLESON, F. P. MATZ*, and *G. B. M. ZERR.*

PROBLEMS.

36. **Proposed by J. A. CALDERHEAD, B. Sc., Superintendent of Schools, Limaville, Ohio.**

Resolve $(x^2+y^2)(x^2+z^2)(y^2+z)$ into the sum of two squares.

37. **Proposed by H. M. CASH, Gibson, Ohio.**

The area of the segment of a circle$=c$, and radius$=r$. Find height of segment.

38 **Proposed by F. M. SHIELDS, Coopwood, Mississippi.**

A man sold 2 horses and a mule for \$286.90. On the first horse he gained as much per cent. as the horse cost dollars, and gained $\frac{5}{8}$ as much per cent. on the second horse as the first, and he loses \$9.10 on the mule. His net gain was \$86.90. What was the cost and selling price of each?